

extension, or credit any overpayment, to Deposit Account 06-1205.

The Examiner is respectfully requested to consider the following Remarks:

#### REMARKS

This application has been reviewed in light of the Office Action dated June 6, 2002. Claims 4, 6-12, and 14-120 are presented for examination, of which Claims 4, 9, 12, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, and 116 are in independent form. No new claims have been added, and none of the pending claims are presently being amended. Favorable reconsideration is requested.

The Office Action rejected Claims 4, 6-12, and 14-120 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,707,450 (Itoyama et al.) in view of U.S. Patent No. 5,786,086 (Frihart et al.). Applicants respectfully traverse the rejections, and submit that independent Claims 4, 9, 12, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, and 116, together with the claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

As discussed in the Amendment submitted on April 24, 2002, conventional building materials with solar cells affixed to backing materials thereof use electrical connectors to connect adjacent solar cells. In such conventional systems, vinyl chloride resins are used to insulate the conductive leads of the electrical connectors, and asphalt, vinyl chloride, polyurethane, and polystyrene materials are used as backing materials. One problem with convention systems is that the space between the solar cells and the backing materials is often narrow. Therefore, the connections must run on the back sides of the solar cells, such that the

electrical connectors as well as the insulated electrical leads often contact the backing material. Over time, chemical reactions take place between the insulating resin and the backing material resulting in cracks in the resin insulators. Such cracks allow moisture to enter the solar cell via capillary action, which promotes electromigration and results in a decrease in the performance of the cell. Accordingly, it is important to ensure the integrity of the jacket.

*Independent Claims 4, 9, and 12*

Independent Claim 4 recites features of a cladding assembly that includes a plurality of building materials. Each of the plurality of building materials includes a substrate and a solar cell unit, and each is fixed on a backing material by a fixing member. Claim 4 recites, *inter alia*,:

a jacket material of the electrical conductive leads is composed of at least one selected from the group consisting of polyethylene resins, polyamide resins, vinylidene fluoride resins, chloroprene rubber, ethylene-propylene rubber, silicone resins, and fluoroelastomers; and the backing material contains any one of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins . . .

. . . wherein the solubility parameter of the jacket material differs from the solubility parameter of the backing material so as to suppress deterioration of the conductive lead resulting from contact between said conductive lead and the backing material.

Claims 9 and 12 include features similar to those of Claim 4 discussed above.

*Independent Claims 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, and 116*

Independent Claims 16, 51, and 86 recite a jacket material composed of at least one polyamide resin and a backing material containing at least one of the group consisting of

asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 17-20, 52-55, and 87-90 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 21, 56, and 91 recite a jacket material composed of at least one vinylidene flouride resin and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 22-25, 57-60, and 92-95 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 26, 61, and 96 recite a jacket material composed of at least chloroprene rubber and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 27-30, 62-65, and 97-100 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 31, 66, and 101 recite a jacket material composed of at least ethylene-propylene rubber and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 31-35, 67-70, and 102-105 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 36, 71, and 106 recite a jacket material composed of at least one silicone resin and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent

Claims 37-40, 72-75, and 107-110 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 41, 76, and 111 recite a jacket material composed of at least one fluoro resin and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 42-45, 77-80, and 112-115 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Independent Claims 46, 81, and 116 recite a jacket material composed of at least one polyethylene resin and a backing material containing at least one of the group consisting of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins. Dependent Claims 47-50, 82-85, and 117-120 recite that the backing material contains one or more asphalt resins, a vinyl chloride resins, polystyrene resins, and polyurethane resins, respectively.

Through these combinations of features recited in the claims, deterioration of the jacket due to the chemical reactions, which take place over time when a jacketed electrical conductive lead is in contact the backing material, can be prevented. Thus, the integrity of the jacket does not deteriorate over time due to chemical reaction. As a result, performance and durability of the solar cell are improved.

Applicants respectfully submit that:

- (1) there is no motivation to combine the cited art as proposed in the Office Action;
- (2) the cited art fails to disclose or suggest at least the combination of the group of materials in the jacket material feature and the group of materials in the backing material

feature, wherein the solubility parameter of the jacket material differs from the solubility parameter of the backing material so as to suppress deterioration of the conductive lead resulting from contact between said conductive lead and the backing material, as claimed in independent Claims 4, 9, and 12; and

(3) the cited art does not teach or suggest the combinations of backing materials and specific jacket materials recited in independent Claims 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, and 116, nor the specific combinations of jacket and backing materials recited in the associated dependent claims.

In view of the above, Applicants submit that the cited art fails to achieve the aforesaid advantages of the present invention as recited in the pending claims.

Itoyama et al. relates to a solar cell module and a passive solar heating system using the solar cell module. Itoyama et al. does not disclose or suggests:

(1) a jacket material composed of at least one selected from the group consisting of polyethylene resins, polyamide resins, vinylidene fluoride resins, chloroprene rubber, ethylene-propylene rubber, silicone resins, and fluoroelastomers; and

(2) a backing material containing any one of asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins.

As understood by Applicants, Frihart et al. is directed to a conductive wire coated with an improved electrical insulation.

The Office Action suggests that the claimed invention is obvious because Frihart et al. supposedly teaches a polyamide resin composition for insulation and protection of a wire, and because it would have been obvious to one of ordinary skill in the art to select the

claimed backing materials from among available materials. Applicants respectfully disagree with such suggestions.

Firstly, Applicants note that, to establish a *prima facie* case of obviousness, MPEP § 2142 requires that:

references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

Therefore, a rejection for obviousness is improper when there is nothing in the cited references, either singly or in combination, to suggest the desirability of the claimed subject matter. Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) (holding that "a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") quoting C.R. Bard, Inc., v. M3 Systems, Inc., 48 USPQ2d 1225, 1232(Fed. Cir. 1998); In re Dance, 48 USPQ2d 1635, 1637(Fed. Cir. 1998) (holding that there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); In re Fine, 837 F.2d 1071, 1075, S USPQ2d 1596, 1600(Fed. Cir. 1988) (warning that "teachings of references can be combined only if there is some suggestion or incentive to do so.").

Also, it is well settled that, when it is necessary to select elements of various teachings in order to form the claimed invention, there must be clear suggestion of motivation in the prior art to make the selection. See Interconnect Planning Corp. v. Feil, 227 USPQ 543, 551 (Fed. Cir. 1985).

Applicants submit that there is no incentive for combining the teachings of the

prior art in the manner suggested in the Office Action, except for what is presented in Applicants' disclosure. However, it is impermissible to reject a claim by engaging in a hindsight reconstruction of the claimed invention by the picking and choosing elements from the prior art, using Applicants' disclosure as a template. In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (holding that Federal Circuit case law is clear "that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); Interconnect Planning, 227 USPQ at 551. Instead, the cited prior art must provide some motivation that would render Applicants' combination obvious. Applicants respectfully submit that such is not the case here. Rather, it is believed that impermissible hindsight reconstruction has been used to formulate the rejections under 35 U.S.C. §103.

Neither of the cited references expressly or impliedly recognizes that the durability of the jacket of an electrical conductive lead can be improved by using certain jacket materials and certain backing materials in combination, so that the combination does not chemically react when in contact. Thus, neither of these patents would expressly or impliedly suggest, to one of ordinary skill in the art, the claimed backing materials (asphalt resins, vinyl chloride resins, polystyrene resins, and polyurethane resins) in combination with the claimed jacket materials (polyethylene resins, polyamide resins, vinylidene fluoride resins, chloroprene rubber, ethylene-propylene rubber, silicone resins, and fluoroelastomers).

More specifically, to establish a *prima facie* case of obviousness, it must be convincingly shown that it would be obvious to one of ordinary skill in the art to select the claimed backing materials for use with the claimed jacket materials. See MPEP §2142.

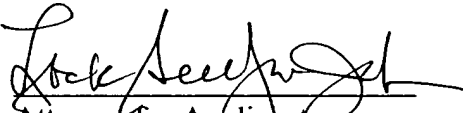
Applicants submit that there is nothing in the cited references, either singly or in combination, to even suggest the desirability of the claimed subject matter. In view of the above, it is respectfully submitted that a *prima facie* case of obviousness has not been established.

For at least the above reasons, Applicants submit that independent Claims 4, 9, 12, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, and 116 are allowable over the cited art. Further, the dependent claims should also be allowable for at least the same reasons as their respective base claims. Individual reconsideration of each of the pending claims is respectfully solicited.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

  
Attorney for Applicants  
Lock SEE YU-JAHNES  
Registration No. 38,667

FITZPATRICK, CELLA, HARPER & SCINTO  
30 Rockefeller Plaza  
New York, New York 10112-3801  
Facsimile: (212) 218-2200